



Excess mortality during heat waves, Tehran Iran: An ecological time-series study

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Abstract:

Background: In the past three decades, Tehran, capital of Iran, has experienced warmer summers so we need to determine heat-related mortality to establish appropriate public health activities during hot summers. The aim of this study was to detect heat waves during the last decades and then determine excess mortality in immediate and lagged times. **Methods:** An ecological study based on time-series model was conducted in Tehran for recent decade using generalized linear lagged model (GLLM) with Poisson regression in 2001-2011. Maximum daily temperature was heat exposure for death outcome on the same day (lag 0), 3 (lag 01) and also 7 (lag 02) day moving average. Relative risk with 95% confidence was reported to quantify for increasing of daily mortalities for 1°C risen exposure. Air pollutants considered as confounders in final model. **Results:** Total excess mortality during 17 heat waves was 1069 (8.9 deaths/Heat wave days). All non-external cause of death increased significantly during heat waves (3%-9%) with (RREuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 1.03, 95% CI: 1.01, 1.05 and RREuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 1.09, 95% CI: 1.07, 1.09) and after adjusting for ozone and PM10 raised. Cause-specific deaths (especially circulatory disease) and death among elderly increased during heat waves (especially in the hottest wave). The largest positive lagged effect of hot temperature although seen during hottest waves for all mortalities. Three waves had the most harvest effect for all categories of mortalities. **Conclusion:** This study showed excess mortalities resulted from hot temperatures and exacerbated with air pollutants in Tehran in the context of climate change. Forward displacement mortality and lagged mortalities were seen, but our results were not conclusive about the displacement pattern of mortalities.

Source: <http://journals.umsha.ac.ir/index.php/JRHS/article/view/839>

Resource Description

Exposure : ☒

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature

Air Pollution: Interaction with Temperature

Temperature: Extreme Heat

Climate Change and Human Health Literature Portal

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: iran

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Morbidity/Mortality, Respiratory Effect

Cardiovascular Effect: Heart Attack, Stroke, Other Cardiovascular Effect

Cardiovascular Disease (other): cardiovascular;cerebrovascular

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : all respiratory diseases

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Elderly

Other Vulnerable Population: women

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified